13 February 2026

Economic Comment

The impact of the frosty winter on the economy

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The winter—atypically frosty and snowy by recent standards—apart from its aesthetic appeal, had an impact on economic performance. We show how it affected various areas of economic activity, including by looking at expenditures captured in data on our bank's customers card payments. According to our findings, consumer spending growth was still solid in January, while the frosts may have weakened industrial and construction output, reducing their January growth rates by around 2.5pp and nearly 4pp, respectively.

In January, the value of card spending was up 6.1% y/y, marking a slowdown from the 8.4% y/y growth recorded in December, but beating November (4.5% y/y). In January we recorded an increase in card spending, among others, on clothing and footwear, sports equipment and heating fuel. It appears that the frosts partly discouraged people from going out to eat or to the cinema, but not from visiting shopping centres. Evidently, consumers more often opted for public transport and taxis instead of using their own cars. Card spending grew fastest in the Małopolskie voivodeship, which is rich in winter sports infrastructure. Judging by spending in pharmacies and on medical services, the frosty January had a net positive effect on our health. Econometric analysis confirmed many of these observations and also suggested increased interest in travel agencies' offers—perhaps to escape the cold or to book trips to warmer countries.

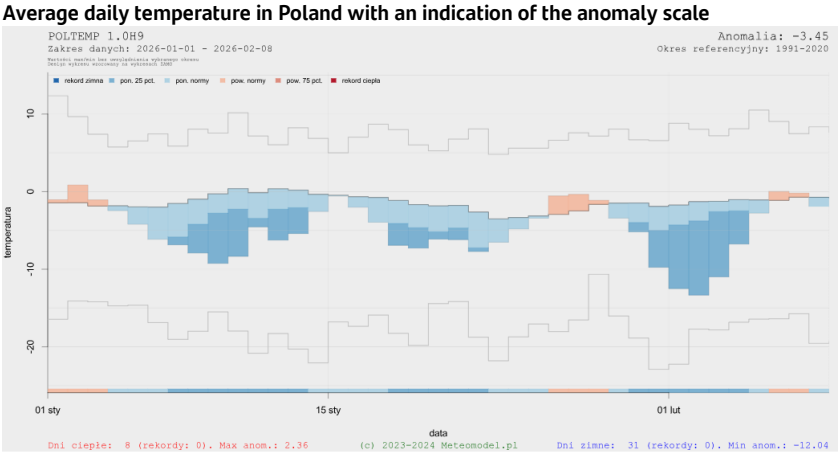
In this report, we analyse how the frosty winter affected economic activity in Poland. We examine changes in card spending by our customers during the period of the most severe frosts. Using econometric models, we estimate the direction and scale of the impact of the unusual January weather on industrial and construction output, as well as the importance of frosty days for individual categories of consumer spending.

The frosts clearly did not trigger a significant weakening of private consumption, but they may have shaved around 2.5pp off the growth rate of industrial output and nearly 4pp in the case of construction output.

How strong is the temperature anomaly?

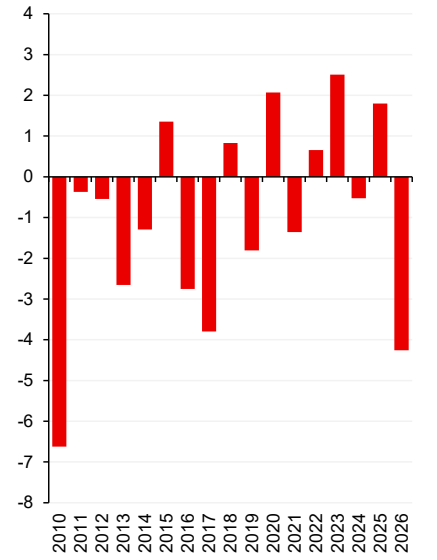
According to the meteomodel.pl service, nationwide temperatures fell below the norm on 4 January and, from 7 January onwards, did not exceed the first quartile for this period (data since 1991), deviating by as much as 9 degrees Celsius below the norm. January was far from breaking cold records, but the backdrop was an exceptionally (and on some days record-breaking) warm December, similar to January a year earlier. Snowfall added to the overall effect.

Average daily temperature in Poland with an indication of the anomaly scale



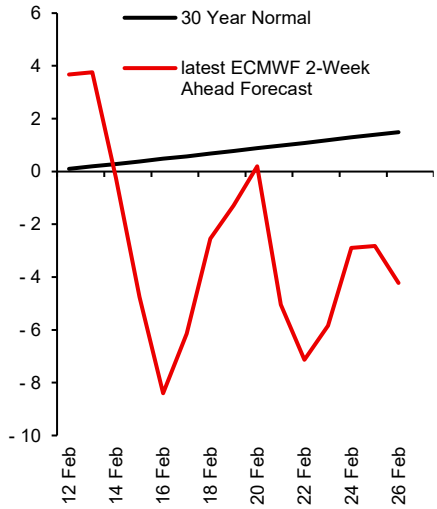
Light blue bars mean downside deviation from the norm for that particular day, values below 1st quartile are in dark blue
Source: meteomodel.pl

Average temperatures in January in Poland, ° C



Source: IMGW, Santander

Forecasts of average temperatures in February and the temperature norm, ° C



Source: European Centre for Medium Term Weather Forecasting, Santander

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Forecasts for Poland from the European Centre for Medium-Range Weather Forecasts show that, after a return of unusual frosts at the turn of January and February and a warm-up in recent days, the average daily temperature is set to fall below the norm (i.e. the 30-year average for a given day) for the remainder of February, with a risk of two further cold spells developing.

Consumer response

We analysed data on card spending by customers in January this year. The background consists of data for the previous two years, providing a basis for assessing trends and changes in y/y dynamics observed in 2025. The data were prepared so as to eliminate the impact of changes in the population of card users over the period under review.

Not all consumer spending is carried out using payment cards, and the share of card usage can differ markedly across purchases of various goods and services, as well as change over time. This may affect the results obtained and lead to discrepancies relative to Statistics Poland (GUS) data on consumer behaviour.

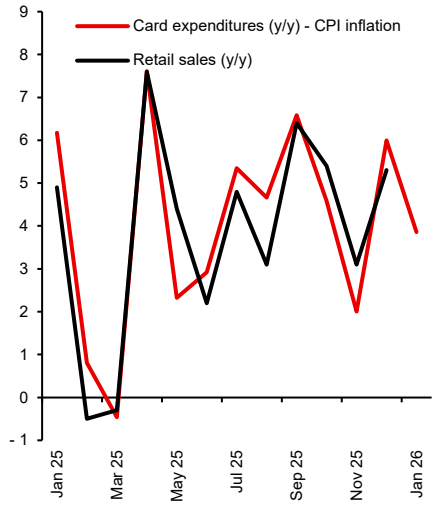
In January, the value of card spending was 6.1% higher than a year earlier, representing a slowdown compared with the 8.4% y/y growth recorded in December, but at the same time a result clearly better than in November (4.5% y/y). After adjusting for changes in consumer prices, January's growth in card spending amounted to 3.9% y/y, compared with 6.0% y/y in December, while the average for 4Q25 was 4.2%.

Over the past two years, there has been a fairly close relationship between the growth rates of spending calculated from our data and the dynamics of retail sales reported by GUS. The correlation coefficient of their monthly real readings for 2025 was 0.9, and average growth was almost identical (card data 4.0%, retail sales 3.9%). Methodologically, these are not exact counterparts (for example, our data include spending on services and we do not apply adjustments to ensure full representativeness for the whole of Poland). Nevertheless, the strength of the correlation between GUS data and ours allows us to conclude that the exceptional frosts did not have a clearly negative impact on the overall value of spending. Behind this conclusion, however, lies a differentiated impact of the frosts across individual spending categories.

Surprising frosts and snowfall naturally increased spending on heating fuel, by 26.4% y/y in January compared with 11.4% y/y in December and 1.1% y/y in November. Based on our data, it is not possible to determine to what extent this acceleration was driven by the large rise in prices recently reported in the media and to what extent by an increase in the quantity of fuel purchased. Payments made by bank card to electricity, gas and heating suppliers were also clearly higher than a year earlier, up 34.6% y/y (this category also includes water supply, waste collection and sewage services), although in this case January did not show a marked acceleration (the average for the previous three months was 35.3% y/y). Exceptional weather encouraged many consumers to purchase additional clothing and footwear (+8.8% y/y, an acceleration from 6.6% y/y in December, with their prices falling by more than 2% y/y according to December GUS data), including sportswear (14.9% y/y after 8.4% y/y in December). This was accompanied by higher spending on sports equipment (20.8% y/y, compared with 12.6% y/y in December).

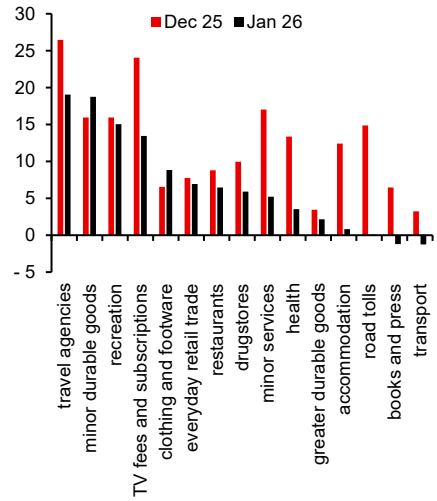
We examined whether detailed data allow us to determine whether consumers spent more time at home due to the frosts. Evidence supporting the hypothesis of less frequent outings includes a decline in cinema spending of 1.2% y/y, whereas in December it had still been growing by 14.3% y/y. In addition, growth in spending at hairdressers slowed to 4.4% y/y from 12.1% y/y in December. Growth in restaurant spending of 6.5% y/y was weaker than in December (8.8% y/y) and needs to be adjusted for the roughly 5.5% y/y rise in prices in the corresponding CPI category over the year (according to December GUS inflation data). On the other hand, spending categories associated with trips to shopping centres performed quite well, such as furniture and home furnishings (+6.8% y/y, previously +6.5% y/y), sales of electronic devices (+3.2% y/y, compared with +0.8% y/y in December), and sales in household appliance stores (+3.8% y/y, accelerating from 2.1% y/y in December). By contrast, frosts clearly discouraged or prevented construction and renovation work (spending on construction materials fell by 8.6% y/y in January, compared with +6.2% y/y in December).

Card spending by customers vs retail sales, price adjusted data, % y/y



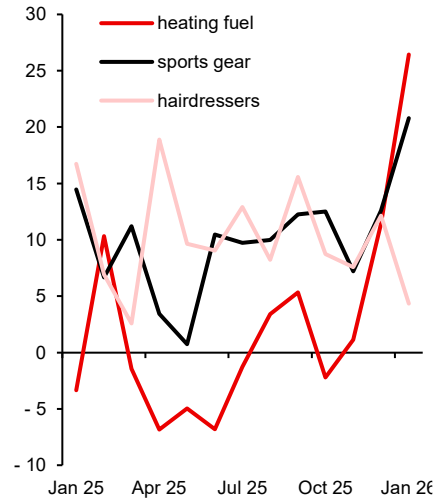
Source: GUS, Santander

Change in the value of card spending, main categories, % y/y



Source: Santander

Change in the value of card spending, selected categories, % y/y



Source: Santander

Although spending on television services (cable TV, streaming platforms) rose by 13.5% y/y in January, in our view this cannot be treated as evidence of lower activity outside the home. It fitted into the general trend of growing interest in such services and, moreover, was clearly weaker than in December (24.1% y/y; it cannot be ruled out that some subscriptions were simply not renewed following price increases by some providers in January). It is also difficult to argue that consumers made greater use of online shopping in January due to the weather: activity on online platforms was high, but its growth rate did not differ from what we observed in 2025 (+22.4% y/y in January versus 22.5% y/y on average last year).

In retail chains, we recorded an increase in card spending by our customers of 10.5% y/y in January, lower than in December (13.9% y/y), but higher than in the three preceding months. This suggests that consumers did not avoid leaving home to go shopping. Where hybrid working arrangements are available, they may have opted more often to work from home, which in turn could have translated into higher purchases of food and everyday items.

Spending in pharmacies rose by 2.8% y/y, while spending on healthcare services increased by 4.3% y/y—both less than the price increases in these categories over the past year (+2.9% and +7.8%, respectively, according to December CPI data). Moreover, growth in these categories in December had been much higher, at 8.5% y/y and 19.5% y/y, respectively. Based on these results, one could venture the conclusion that frost had a net positive effect on consumer health: while it created additional accident risks, it hindered the spread of droplet-borne diseases (according to data from the National Institute of Hygiene, the incidence of the most common of these was 30% y/y lower in January, compared with 0% y/y in December).

Exceptional frosts and snowfall may also have affected the use of private cars. Higher spending in January on local transport, including public transport and taxis, up 8.4% y/y (compared with 6.9% y/y in December), suggests more frequent resignation from commuting by private car under adverse weather conditions (the need for snow clearing, warming up the car, snow-covered parking spaces, higher risk of minor accidents, potential starting problems). Spending on fuel itself is not decisive here: it fell by 2.7% y/y (after rising by 1.3% y/y in December), but this occurred amid a 7.1% y/y drop in prices (according to preliminary GUS data for January) and higher consumption related to vehicle heating.

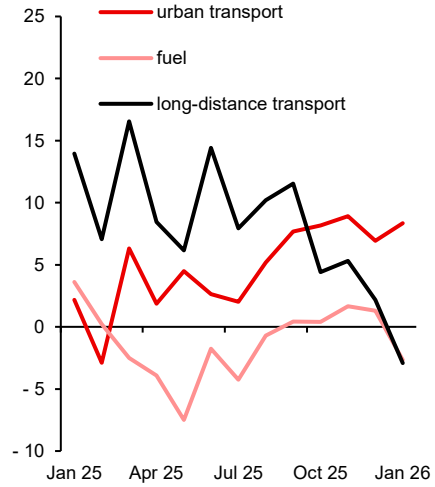
We did not find clear evidence that the unusual weather led to greater interest in tourist travel. In the "accommodation" category, spending increased by just 0.8% y/y (a slowdown from 12.4% y/y in December), despite accommodation prices rising by around 4.4% y/y over this period. It should be borne in mind that trips to the Polish mountains involving private accommodation are rarely paid for by card. The y/y total of card payments for airline tickets was higher (9.1%), but a month earlier the growth rate had been clearly stronger (20.1% y/y). Here, however, allowance must be made for high volatility in airfares: for example, according to GUS, in December 2024 they were almost 40% cheaper y/y, while in January 2025 they were more than 30% y/y higher; data for December 2025 show a 9% y/y decline. The sizeable increase visible in January in payments to travel offices and agencies (19.1% y/y) was nevertheless weaker than in December (26.5% y/y) and even than in 2H25, when average growth stood at 30.6% y/y.

Impact of low temperatures on spending according to the econometric analysis

We compared conclusions about consumer behaviour based on y/y growth rates with the results of an econometric study. To determine how low temperatures may have affected consumer behaviour in January, we estimated a set of simple panel models based on daily levels of card spending in individual categories of goods and services in December 2024, January 2025, December 2025 and January 2026 (in other words, during the winter seasons 2024/2025 and 2025/2026).

As the main explanatory variable, we used an indicator showing in how many voivodeship capitals on a given day temperatures were below -10°C. We additionally weighted the contributions of individual capitals to the indicator by their voivodeships' shares in retail trade gross value added. As control variables we used, among others, binary variables for individual days of the week, public holidays, and the winter school holidays. We also controlled for potential time fixed effects, i.e. broad changes that could have occurred in daily spending levels over the course of a year (such changes may be related, for example, to changes in the price level or in the business cycle).

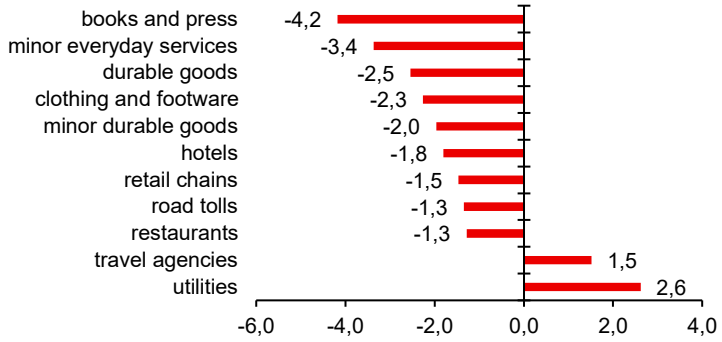
Change in the value of card spending, selected categories, % y/y



Source: Santander

The estimated impact of frosts on the value of daily card payments turned out to be statistically significant in some spending categories, but fairly small when translated into an effect at the scale of the whole month. It should be emphasised that, according to our calculations, in January there were only three days when the frost was severe enough to reduce shopping activity. In other words, the effects we estimated could have occurred only on three days in January. As a result, according to our calculations, the strongest decline in spending over the whole month attributable solely to January frosts could have been just 0.4% (in the books and press category), while the largest increase was 0.2% (utilities).

Statistical impact of low temperature (< -10°C) on daily levels of card spending, %*



**The chart shows only statistically significant results, i.e. with p-value < 0.1*
Source: Santander

Our results indicate that low temperatures had a positive effect on utilities spending, in line with intuition and with the conclusions from the y/y growth-rate analysis presented in the previous section. Interestingly, low temperatures also had a statistically positive effect on spending at travel agencies—during cold spells, interest in their offers increased. This may suggest that faced with unusually low temperatures, more Poles decided to purchase foreign holidays to "decompress" after winter in a more favourable climate.

On the other hand, low temperatures had a negative effect on most of the remaining categories of card spending, including spending in restaurants (on cold days it was 1.3% lower than on days with milder temperatures), retail chains (-1.5%), hotels (1.8%) and small everyday service providers (-3.4%). In general, this suggests that on cold days Poles were less inclined to leave their homes to shop or use services.

Impact of winter on spending at the regional level

The winter spell was not equally intense across the country, which allowed us to assess whether there is a relationship between the severity of frost and customer behaviour. As our analysis shows, in voivodeships where stronger temperature declines were recorded relative to January 2025, we generally also observed higher y/y growth in card-spending volumes. In our view, this confirms that January frosts did not have a visibly negative impact on sales.

The regional results may reflect a non-linear effect of low temperatures—as the frost intensifies, heating the home (an expense that generally cannot be forgone) becomes increasingly costly and, at sufficiently low temperatures, ceases to be offset by falling out-of-home shopping activity.

The highest spending growth was recorded in the south of the country, in the Małopolskie and Podkarpackie voivodeships, at 4.9% y/y and 4.3% y/y, respectively. Average daily temperatures in these voivodeships were around -4°C and were roughly 5–7°C lower than in January 2025. Other recorded increases ranged from 0.5% y/y (Śląskie) to 2.8% y/y (Mazowieckie).

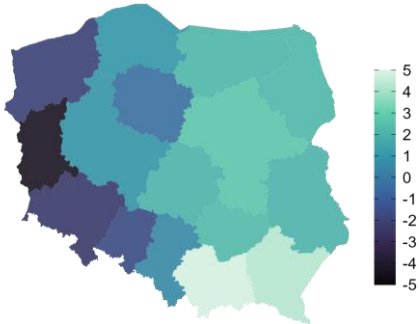
We recorded declines in spending in only five voivodeships (Zachodniopomorskie, Kujawsko-Pomorskie, Lubuskie, Dolnośląskie and Opolskie). Their scale ranged from 0.3% (Kujawsko-Pomorskie) to 4.3% (Lubuskie).

At first glance, the regional distribution of spending growth might suggest that in January Poles decided to take advantage of an exceptionally snowy winter and travel from regions with relatively mild temperatures to voivodeships with more interesting weather conditions—above all to the particularly seasonally attractive south-east. However, the pattern of spending growth across voivodeships does not provide sufficient confirmation of this thesis. Regions

Difference in average temperatures between January 2025 and January 2026 by voivodeship, °C

Source: IMGW, PRG, Santander

Change in the volume of card spending between January 2025 and January 2026, % y/y



Source: PRG, Santander

where winter sports infrastructure is mainly located showed divergent results: Małopolska stood out on the upside, Śląskie delivered a result close to the national average, while Dolnośląskie lagged on the downside (although snowfall there was less reliable). The geographic concentration of spending was also blurred by the fact that an exceptionally large part of Poland was suitable for cross-country skiing at that time.

Impact on industrial output

Current economic activity can be observed through the intensity of goods road traffic, which leaves a trace in the form of toll-road charges. Partial data for January show that traffic was even less intense than in January last year, which stood out against the rest of 2025 with much weaker y/y growth. Year-on-year declines in the total of toll-road charges have recently been quite rare—they occurred in 1H23, but even then it was a matter of a high statistical base (the rebound in 2022 from pandemic restrictions).

Industrial orders in Germany have improved markedly in recent months, up 5.6% m/m in November and 7.8% m/m in December. We would expect this to translate into heavier lorry traffic in Poland. However, there is no trace of this rise in orders in toll-road data for November, December and early January. We infer from this that the weather may have hindered and delayed their execution.

For industry, a harsh and snowy winter means logistical disruptions, visible in weaker road transport. On the other hand, one component of total industrial output—production and supply of electricity, gas and heat—most likely experienced a marked increase in demand.

The share of this category in total industrial output typically ranges from 6–7% in the warmer half of the year to 9–10% from late autumn to early spring (although during the 2022–2023 energy crisis it could reach 16%). Hence, every 10% rise in output in electricity, gas and heat production and supply would now add an additional 1pp to the overall industrial output result.

Electricity consumption data for January came in at 8.5% y/y, the highest reading since July 2021. This is a clue when forecasting January's result for electricity, gas and heat production and supply—suggesting we should aim high, perhaps even around 20% y/y. The correlation in these data, however, is not very strong.

We estimated the overall impact of low temperatures on output using an econometric model based on industry sentiment indicators, calendar effects and time-series analysis components. We found that assessing the impact of frost in such a model is possible by introducing a variable counting days of strongly negative temperatures (constructed analogously to the econometric study of card spending, and therefore allowing fractional values), which suggests that the temperature effect is clearly non-linear. Each day with an average temperature of around -10°C or lower, according to the model, will reduce output growth in that period by about 1.1pp. It is enough for the frost to remain as severe as in the first month (i.e. it does not need to intensify) to exert additional downward pressure on y/y industrial output growth.

In January, the number of days we recorded as sufficiently frosty to affect industrial output was 2.3, which means their impact could have been around 2.5pp. Our forecast for industrial output in January is 2.8% y/y, implying a marked slowdown from 7.3% y/y recorded in December. The median of economists' forecasts compiled by *Parkiet* is 2.7% y/y.

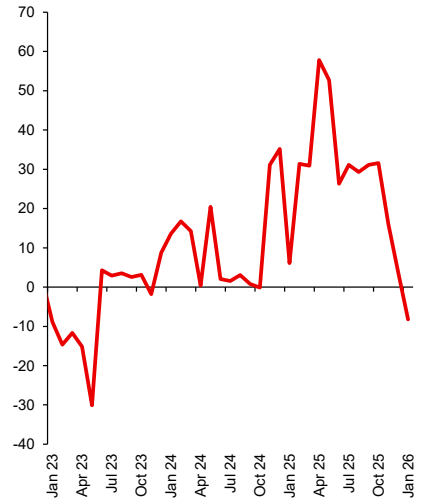
Impact on construction and assembly output

In construction, very low temperatures, precipitation and lingering snow create difficulties in carrying out work. There are purely physical constraints, such as temperatures being too low for concrete to set. In addition, a frost that persists longer makes earthworks impossible.

When estimating the impact of weather in the first months of the year, one must allow for the fact that output levels are relatively low then compared with the rest of the year—and, as a result, y/y growth is very sensitive to shocks such as weather-related disruptions to construction work. The direction of the impact of an atypical January winter seems, however, obvious.

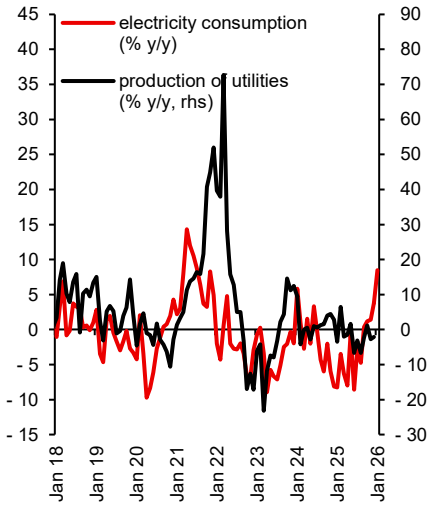
A GUS survey on business conditions in the construction sector in January showed numerous indications from construction firms that the weather hampered business activity—33.8% of respondents stated this. On this basis, weather conditions should be considered much more difficult than in December 2025 (22.3% citing weather as a barrier to doing business) and than a

Road traffic: toll charges for heavy goods vehicles in the first seven days of the month, % y/y



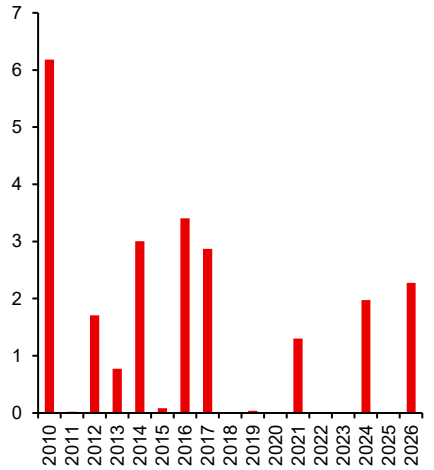
Source: GUS, Santander

Electricity consumption vs industrial output in electricity, gas and steam production and supply



Source: PSE, GUS, Santander

Number of January days with temperatures falling below -10°C

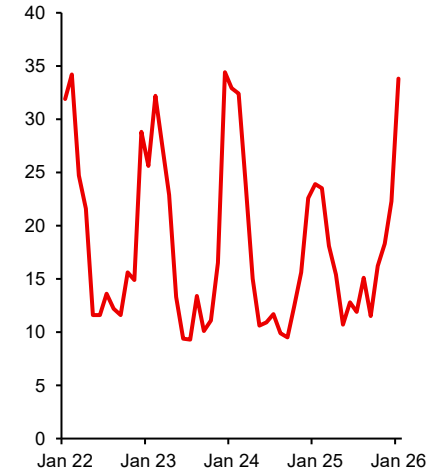


Average data for voivodeship capitals, weighted by voivodeships' shares in industrial value added
Source: GUS, Santander

year earlier (23.9% in January 2025), though still similar in terms of burden to the winter of 2023/2024.

An econometric model for construction analogous to the one for industry allows us to estimate the impact of difficult weather conditions at around 1.3pp of lost construction output growth for each day of strongly negative temperatures (again, different ways of introducing the weather variable lead to the conclusion that the temperature effect is clearly non-linear). For January this year, we estimate the negative effect on construction output at 3.7pp. Our forecast for construction output in January is -2.5% y/y, versus growth of 4.5% y/y recorded in December. The median of economists' forecasts compiled by *Parkiet* for construction output is -3.5% y/y.

Share of construction firms indicating weather as a barrier to business activity, %



Source: GUS, Santander